Ref: GHIAL/AO-ENV/TGPCB/2024/07

14.06.2024

The Environmental Engineer,
Regional Office-I, Ranga Reddy District,
Telangana State Pollution Control Board,
Begumpet, Hyderabad - 500016.

Sub: Submission of "Environmental Statement" for April 2023-March 2024.

Ref: Consent & Authorization order no. Authorization No: 210822751923 Dated 17.02.2021 (Schedule B Serial No 27.)

Dear Sir,

Please find attached herewith "Environmental Statement" in Form–V for the period April 2023 - March 2024 pertaining to Rajiv Gandhi international Airport.

This is for your information and records please.

Thanking you,

Yours Sincerely,

For **GMR Hyderabad International Airport Ltd,**

Wing Commander A V Lakshmana Kumar (Retd)
Vice President
Head - Safety & Environmental Compliance

Enclosure: Environmental Statement in Form–V

Copy to:

- The Member Secretary, TGPCB, Hyderabad.

Environmental Statement

FORM V
(See rule 14)

Environmental Statement for the financial year ending the 31st March 2024.

PART A

Name and address of the owner/occupier of the industry operation or process	M/s. GMR Hyderabad International Airport Limited, Shamshabad, Ranga Reddy District, Hyderabad, Telangana state.
Industry category Primary – (STC Code) Secondary – (STC Code)	Airports (Red category industrial sector)
Production capacity	Airport capacity – 25 million passengers & 3 lakhs metric ton cargo per annum
Year of establishment	The Airport was commissioned on 23rd March 2008
Date of last environmental statement submitted.	30th June 2023

PART B

Water and Raw Material Consumption

Water consumption in m3/d - N/A	
Process -	-----
Cooling –	-----
Domestic -	-----

Name of products	**Process water consumption per unit of product output.**	
	During the previous financial year (2022-23)	**During the current financial year (2023-24)**
Airport operations	3652 KLD (Domestic + Cooling + Flushing+ irrigation) GHIAL net water consumption	3852 KLD (Domestic + Cooling + Flushing+ irrigation) GHIAL net water consumption
Break-up	fresh water (HMWS): 923 KLD Fresh water (Reservoir 2): 292 KLD Treated wastewater: 1356 KLD. Ground water: 1081 KLD	fresh water (HMWS): 1076 KLD Fresh water (Reservoir 2): 222 KLD Treated wastewater: 1263 KLD. Ground water: 1290 KLD

***Water consumption details are attached as Annexure- I**

Raw material Consumption: Not Applicable since this is an airport.

Name of raw material/ Name of products	Consumption of raw material per unit of output	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
	-------	--------

PART C
Pollution discharged to environment/unit of output

(Parameter as specified in the consent issued)

Pollution	Quantity of pollutants discharged (mass/day)	Concentration of Pollutants discharged (mass/volume)	Percentage of variation from prescribed standards with reasons.
(a) Water	No wastewater has been discharged from the airport. [The sewage generated from the Airport (**1791 KL / day**) was treated in the STP within the premises of the airport. After treatment the wastewater is recycled for flushing, cooling tower makeup and irrigation within the airport premises]	Wastewater and air quality parameters are being monitored by MoEF &CC approved laboratory. Monitoring data enclosed as **Annexure II.**	Waste water parameters are within the prescribed standards. The ambient air quality and D.G sets - chimney monitoring results are within the T.G.P.C.B., prescribed standards.
(b) Air	The air pollutants from the DG set chimneys are released at the height of 100 feet.		

PART D

HAZARDOUS WASTES

(As specified under Hazardous Wastes (Management & Handling Rules, 1989)

Hazardous Wastes	Total Quantity (Liters)	
	During the previous financial year (2022-23)	During the current financial year (2023-24)
From Process (Used oil & Grease)	Total:6238 liters 6238 liters (Used oil & Used Aviation Turbine Fuel)	Total: 18730 liters 18730 liters (Used oil)
From pollution control facilities.	Nil	Nil

Hazardous Wastes generation & disposal details are attached as Annexure- III

PART E

Solid Wastes

		Total Quantity (kg)	
		During the previous financial year (2022-23	During the current financial year (2023-24)
From Process (Food waste, plastic, paper, metal and glass scrap)	kg	3193407	4638021
From pollution control facility (STP generated sludge)	kg	156018	720000
Quantity recycled or reutilized within the unit (Food waste, sludge from STP is converted into compost and used as manure)	kg	156018	1450000
Sold (Plastic, paper, metal and glass scrap)	kg	459985	636021
Disposed (Disposal of food waste to GHMC)	kg	2733422	3272000

Total solid waste generated 4638021 kg/year [Food waste-4002000 kg, STP sludge- 720000 kg, paper-281992 kg, plastic-168517 kg, Metal waste-48179 kg and glass-137333 kg]
****Solid Waste Disposal details are mentioned in Annexure-IV**

PART F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Type of waste	Composition	Quantity generated in (Ltr/Year)	Disposal
Hazardous waste (Used oil & Aviation Turbine Fuel)	Organic material	liters/year	T.G.P.C.B authorized agencies.
Solid waste	Garbage (Paper, plastic, metal, glass), STP sludge and food waste	kg/year	*Sludge generated from STP are used as manure. *Food waste generated is being sent to GHMC dump yard. *Other waste i.e. paper, plastic, glass, metal is sent to recyclers.

PART G

Impact of the pollution control measures taken on conservation of natural resources and consequently on the cost of production.

- The treated wastewater and the rainwater runoff had been used for irrigation and flushing purposes instead of HMWS & SB source water.

*Expenditure made on Pollution control equipment /Services/Consents/Waste disposal etc. for the financial year 2023–24.

S.NO	Description	Cost incurred for 2023-24 (in Rs).
1	Sewage Treatment Plant operational charges (energy, manpower and chemicals)	1,66,05,643.51
2	Water Treatment Plant operational charges (energy, manpower and chemicals)	67,75,454.42
3	Rainwater harvesting tanks (energy, manpower, civil works) operation & maintenance	1,69,810.80
4	RO Plant for the water treatment (energy, manpower, chemicals and lab analysis)	34,16,046.62
5	Horticulture and green belt development	10,90,57,135.00
6	Solid waste collection and disposal charges	1,62,86,640.00
7	Operation and maintenance cost of (CAAQMS) Continuous Ambient Air Quality Monitoring Station (AMC, ARC & Calibration)	11,72,782.34
8	Third party environmental quality monitoring in and around the airport	8,42,166.00
9	NMT House rents	1,32,000.00
10	Greenhouse gas Auditing for Carbon accreditation	2,25,000.00
11	Noise mapping study	15,00,000.00
12	Airport Carbon Accreditation status from Level 3+ to Level 4+	11,76,120.00
13	Operation and Maintenance of CCTV cameras at NMTs and CAAQMS at GMR Township	4,55,002.00
14	STP water balance revision Consultancy Charges	5,00,000.00
15	Purchase of Certified Emission Reductions (CERs)	56,38,797.70
16	Third party environmental compliance audit	2,59,000.00
17	CO& Ozone Analyzers Purchase	27,73,000.00
	Total Rs	16,69,84,598.39

PART H

Additional measures/investment proposal for environmental protection including abatement of pollution.

In addition to the existing STP of 1850 KLD, GMR Hyderabad International Airport Ltd., (GHIAL) has established another 2X 1350 KLD = 2700 KLD of Sewage Treatment Plants at Rajiv Gandhi International Airport (RGIA).

PART I

Any other particulars for improving the quality of the environment

- RGI Airport is being powered with 100% renewable energy.
- GHIAL has commissioned its second 5MWp Solar Power Plant in addition to the existing 5MWp by which GHIAL has increased its total installed capacity to 10MWp.
- GHIAL has been awarded with **Green Airport Recognition 2023 – "Single-Use Plastic Elimination" – Gold** by the Airports Council International.
- GHIAL along with its airport stakeholders ensuring sustainable airport operation at RGIA like community empowerment, greenbelt development, solar energy use, green buildings construction, single use plastic control, reduction of carbon emissions and maintaining carbon neutral airport status and Net Zero Carbon Organization with Level 4+ of the Airport Carbon Accreditation, etc.

Wing Commander AV Lakshmana Kumar
Head- Safety and Environmental Compliance
GMR Hyderabad International Airport,
Shamshabad, Ranga Reddy District,
Telangana state.

-End-

Annexure -1

Water consumption details for April 2023 –March 2024

GMR Hyderabad International Airport Limited-Net Water Consumption FY 2023-2024							
Month	**Domestic (kl)**		**Cooling Tower (CT) makeup water (kl)**	**Flushing (kl)**	**Gardening (kl)**		**Total (kl)**
	HMWS&SB	**Reservoir-2**	**Treated WW**	**Treated WW**	**Treated WW**	**Ground Water**	**GHIAL's net Water Consumption**
Apr-23	34522	0	14348	19018	3243	60114	**131245**
May-23	33956	12057	17104	21117	3884	64485	**152603**
Jun-23	29601	9511	15823	22019	1910	47085	**125949**
Jul-23	35370	8228	11941	21326	8865	9545	**95275**
Aug-23	33799	0	12292	20008	6632	20706	**93437**
Sep-23	34251	727	11016	20852	2125	12868	**81839**
Oct-23	31440	9717	11926	20374	2905	28066	**104428**
Nov-23	25202	12637	11811	21126	2305	38155	**111236**
Dec-23	36741	5597	11250	22432	1580	43951	**121551**
Jan-24	31915	9031	10982	24466	2819	46423	**125636**
Feb-24	26576	13691	14690	25550	3002	44652	**128161**
Mar-24	40563	0	19460	21163	962	56223	**138371**
	393936	**81,196**	**162643**	**259451**	**40232**	**472273**	**1409731**
						Per Day (kl per day)	**3852**

Note:

1. Domestic: fresh water from HMWS&SB
2. CT makeup: Treated wastewater (WW) from STP
3. Flushing: Treated wastewater (WW) from STP
4. Gardening: Treated wastewater (WW) from STP + Groundwater

*GHIAL's net consumption means excluding concessionaires like Novotel, Inflight kitchens, Amazon fulfillment center, GMR Aero Technic Limited, SEZ tenants etc.

HYDERABAD RAJIV GANDHI INTERNATIONAL AIRPORT

GMR

ENVIRONMENTAL QUALITY MONITORING REPORT

March - 2024

RAJIV GANDHI INTERNATIONAL AIRPORT
HYDERABAD

Submitted to

M/s. GMR Hyderabad International Airport Ltd.

Shamshabad, Hyderabad - 500 108.

Prepared by

M/s. UNIVERSAL ENVIRO ASSOCIATES

104 & 105, Libra Enclave, RTC "X" Roads, Musheerabad, Hyderabad – 500 020

ACKNOWLEDGEMENT

M/s. Universal Enviro Associates express sincere debt of gratitude to M/s. GMR Hyderabad International Airport Ltd., for the opportunity given by assigning the preparation of Environmental Quality Monitoring Study for **Rajiv Gandhi International Airport** located at Shamshabad, Hyderabad. Special mention needs to be made for executives of M/s. GMR Hyderabad International Airport for their co-operation and assistance during the preparation of this report. We also wish to acknowledge our gratitude to all of them who helped during the monitoring period.

For and on behalf of
M/s. UNIVERSAL ENVIRO ASSOCIATES

T. Krishna.

Authorized Signatory.

Name : T. KRISHNA
Position : Technical Manager

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ABBREVIATIONS

Short form	Expanded Form
%	Percentage
^{0}C	Degree Celsius
<	Less than
µg	Microgram
µm	Micrometer
µs	Micro Siemens
AAQ	Ambient Air Quality
ACF	Activated Carbon Filter
AGL	Airfield Ground Lighting
a.m.	After meridian
TSPCB	Telangana State Pollution Control Board
BOD	Bio-Chemical Oxygen Demand
BDL	Below Detectable Limit
COD	Chemical Oxygen Demand
CFO	Consent for Operation
cm	Centimeter
CO	Carbon Monoxide
dB(A)	Decibels on scale A
ds/m	Decisiemens per meter
D.G. Set	Diesel Generator Set
E	East
E.C.	Electrical Conductivity
ENE	East of Northeast
g/cc	gram/centimeter cube
GHIAL	GMR Hyderabad International Airport Ltd
IS	Indian Standards
kg/ha	Kilogram per hectare
km	Kilometer
Kmph	Kilometer per hour
KVA	Kilo Volt – Ampere
l	Liter
L_{eq}.	Equivalent levels

m	Meter
mg	Milligram
mg/l	Milligram per liter
mg/Nm^3	Milligram per normal cubic meter
max	Maximum
min	Minimum
mm	Millimeter
m/sec	Meter per second
N	North
Nm^3	Normal cubic meter
Nm^3/hr	Normal cubic meter per hour
NOx	Oxides of Nitrogen
NW	Northwest
pH	Potentiality of hydrogen ions
$PM_{2.5}$	Particulate Matter size less than 2.5 µm
PM_{10}	Particulate Matter size less than 10 µm
p.m.	Post meridian
ppm	Parts per million
RGIA	Rajiv Gandhi International Airport
RWHS	Rain Water Harvesting Structure
S	South
SE	Southeast
SO_2	Sulphur Dioxide
SPM	Suspended Particulate Matter
Sq.m	Square meter
SSW	South of Southwest
STP	Sewage Treatment Plant
TDS	Total Dissolved Solids
W	West
WNW	West of Northwest
WTP	Water Treatment Plant
g/KW-hr	Gram per Kilo Watt hour

1.0 Introduction:

M/s. GMR Hyderabad International Airport Limited has awarded **M/s. UNIVERSAL ENVIRO ASSOCIATES (UEA)** the environmental consultancy service contract for carrying out monthly environmental parameters monitoring study for their ongoing works of Rajiv Gandhi International Airport, Shamshabad, Hyderabad. This monitoring report is an overview of the findings of the field investigations carried out for the month of March, 2024.The field monitoring data was collected during **11-03-2024 to 13-03-2024** at Rajiv Gandhi international Airport, Shamshabad and 10 km surrounding area. The study area for Environmental Monitoring is airport premises and its surrounding area up to 10 km of aerial distance is taken as buffer zone which is located towards east of Hyderabad, NH-7 (Bangalore Highway). This site is approximately 20 km away from the Hyderabad city premises.

1.1 Objective:

The objective of the environmental parameters monitoring is to create an overview of the existing environmental quality using the field investigations in and around the study area.

1.2 GMR Hyderabad International Airport Limited:

GMR Hyderabad International Airport Limited (GHIAL) is a joint venture company promoted by the GMR Group (63%) in partnership with Government of India (13%), Government of Telangana (13%) and Malaysia Airports Holdings Berhad (11%). The Company was incorporated to design, finance, build, operate and maintain a world class Greenfield airport at Shamshabad, Hyderabad, and Telangana.

1.3 Environmental Monitoring Study:

The environmental monitoring study and analysis is carried out for air, water, soil, wastewater quality and Noise Levels in and around the airport site. The samples collection measurements are carried out within a radius of 10 km with the airport site as epicenter.

The ambient air quality monitoring is carried out for 24 hours for assessing air pollutants levels. Instantaneous duplicate for the water and wastewater samples are collected to assess the quality of water and wastewater characteristics.

2.0 Environmental Status of Study Area:

2.1.1 Meteorological Monitoring: Data Analysis - Micro Meteorological Status

Meteorological parameters are important factors in the study of air pollution. The transport and diffusion of the pollutants in the atmosphere are governed by meteorological parameters. Wind velocity, wind direction and diffusion of pollutants depend mainly on three factors. Ambient temperatures, humidity, rainfall, atmospheric pressure etc. are known as secondary meteorological parameters as these factors control the dispersion of the pollutants indirectly by affecting the primary Factors. Thus, to assess the air pollution impact, it is essential to collect the above meteorological parameters in the project area.

2.1.2 Data Presentation:

Meteorological data was recorded at intervals of every one hour, during the study period of March, 2024. Recorded average values for the month of March 2024.

S No.	Parameters	March 2024		
		Min	Max	Average
1	Relative humidity (%)	13.72	86.10	45.16
2	Temperature (^{0}C)	21.07	40.49	29.75
3	Total rainfall (mm)	6.6		
4	Predominant Wind Direction	WEST		
5	Wind speed (m/s)	0	5.27	1.644
6	Atmospheric Pressure (milli bars)	599.86	622.10	599.97

2.2 Ambient Air Quality:

2.2.1 Analysis Techniques

TABLE-1

TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

Sl. No.	Parameter	Technique	Technical Protocol
1.	PM_{10}	Respirable Dust Sampler (Gravimetric method)	IS:5182 (Part-23),2006 (Gravimetric Method)
2.	$PM_{2.5}$	$PM_{2.5}$ Dust Sampler (Gravimetric method)	CPCB Guide lines, Volume-1,2012 (Gravimetric Method)
3.	Sulphur Dioxide	Spectrophotometric Method	IS:5182 (Part-2),2001 (Improved West &Gaeke Method)
5.	Nitrogen dioxide(NO_2)	Spectrophotometric Method	IS:5182 (Part-6),2006 (Modified Jacob & Hocchheiser Method)
6.	Carbon Monoxide	Gas Chromatography Method	IS:5182 (Part-10), 1999 (Non Dispersive Infra-Red Method)
7.	Ammonia	UV-Visible Spectrophotometric Method	CPCB Guide lines, Volume-1,2012 (Indophenol Blue Method)
8.	Ozone	UV-Visible Spectrophotometric Method	IS:5182 (Part-9),1974 (Chemical Method)
9.	Methane	Gas Chromatography Method	IS:5182 (Part-21),2001 (Adsorption and Desorption followed by GC)
10.	Benzene	Gas Chromatography Method	IS:5182 (Part-11),2006 Absorption & Desorption method followed by GC

2.2.2 Details of Monitoring Locations:

Seven locations have been selected for ambient air quality monitoring locations. Location details are given in Table-2.

TABLE – 2
AMBIENTAIR QUALITY MONITORING LOCATIONS

S. No	Name of the Location	Direction/distance with respect to airport site		Environmental setting
		Direction	Distance (km)*	Pollution generating sources
1	Site Office	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
2	GMR VF Building	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
3	Airport Expansion (East Pier Side)	Nodal Center	0.0	Vehicular movements, aircraft movements, airport dust, fugitive dust from surrounding activities.
4	GMR Township, Mamidipalli	Northeast	3.43	Residential activities are like unpaved village roads, vehicular pollution, agricultural & domestic activities.
5	Rasheedguda	South West	3.4	Residential activities are like unpaved village roads, Vehicular pollution, agricultural &domestic activities.
6	Sardar Nagar	Southeast	8.2	Residential activities are like unpaved village roads, vehicular pollution, agricultural & domestic activities.
7	Vellankanni Nagar	North West	4.7	Residential activities are like unpaved village roads, vehicular pollution, agricultural & domestic activities.

2.2.3 Parameter Monitored and Results: Monitoring has been conducted for PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, Ammonia, Ozone, Methane and Benzene. The ambient air quality monitoring results of all these parameters are given in Table – 3 & 4.

TABLE- 3
AMBIENT AIR QUALITY RESULTS

Sampling Location			RGI Airport Boundary		
			Site Office	GMR VF Building	Airport Expansion (East Processor)
Parameters	**Units**	**Limits**	11.03.2024	11.03.2024	11.03.2024
PM_{10}	µg/m³	**100**	62.3	61.9	66.8
$PM_{2.5}$	µg/m³	**60**	23.9	22.8	28.6
Sulphur Dioxide	µg/m³	**80**	15.4	13.6	17.3
Oxides of Nitrogen	µg/m³	**80**	21.2	19.1	19.8
Carbon Monoxide	mg/m³	**2**	0.44	0.37	0.63
Ammonia	µg/m³	**400**	6.5	7.2	6.8
Ozone	µg/m³	**100**	14.8	15.3	16.6
Methane	ppm	-	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)
Benzene	µg/m³	**5**	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)

Note:

1. **AAQ Standard limits: - as per GHIAL's CFO dated 01.02.2022 and NAAQMS.**

TABLE- 4
AMBIENT AIR QUALITY RESULTS

Sampling Locations			Buffer Zone (Surrounding)			
			GMR Township Mamidipalli	Rasheedguda	Sardar Nagar	Vellankanni Nagar
Parameters	**Units**	**Limits**	11.03.2024	12.03.2024	12.03.2024	12.03.2024
PM_{10}	µg/m³	**100**	58.6	59.1	46.1	55.1
$PM_{2.5}$	µg/m³	**60**	21.4	21.6	16.9	18.4
Sulphur Dioxide	µg/m³	**80**	11.6	13.6	12.3	11.6
Oxides of Nitrogen	µg/m³	**80**	14.1	20.7	15.8	15.3
Carbon Monoxide	mg/m³	**2**	0.24	0.31	0.34	0.20
Ammonia	µg/m³	**400**	6.2	5.3	5.9	5.1
Ozone	µg/m³	**100**	16.1	13.9	15.7	13.3
Methane	ppm	-	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)
Benzene	µg/m³	**5**	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)	BDL (DL: 0.1 ppm)

Note:

1. **AAQ Standard limits: - as per GHIAL's CFO dated 01.02.2022 and NAAQMS.**

Fig- 2.Variations of AAQ Parameters PM_{10} and $PM_{2.5}$

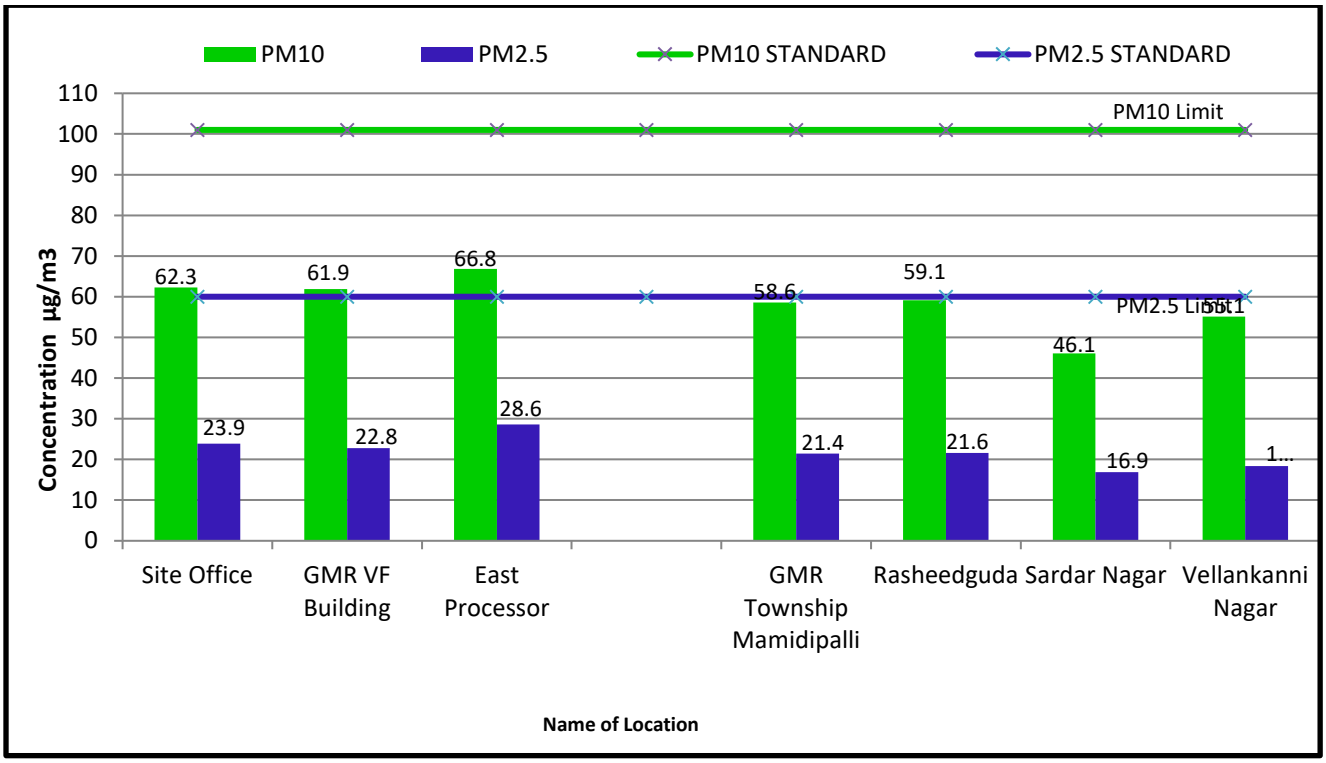
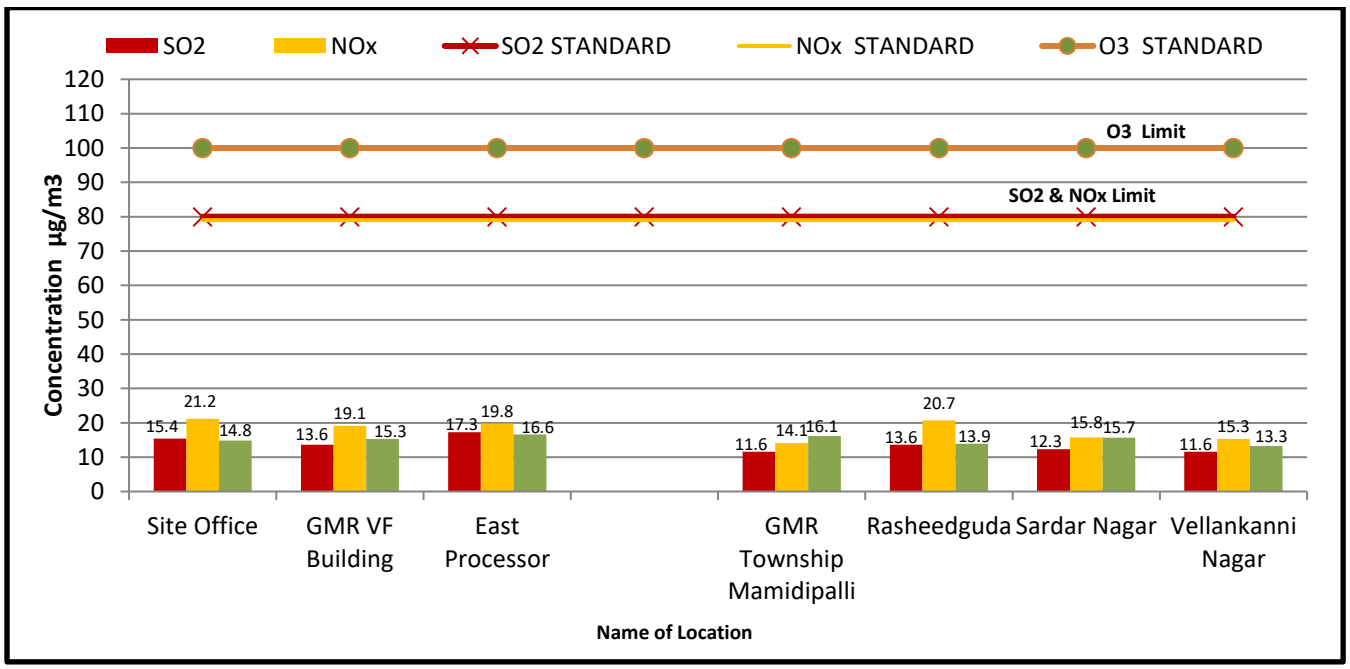


Fig- 3.Variations of AAQ Parameters SO_2, NO_X and Ozone (O_3)



2.3 Noise Levels:

2.3.1 Details of monitoring locations:

During the study period noise monitoring has been conducted at eight locations. Locations details are given in Table – 5

TABLE - 5

NOISE MONITORING LOCATIONS

S. No.	Name of the location	Direction / distance with respect to airport site		Description
		Direction	Distance (km)*	
1	Site Office	Nodal Center	0.0	Airport
2	GMR VF Building	Nodal Center	0.0	Airport
3	Airport Expansion (East Pier Side)	Nodal Center	0.0	Airport
4	Airport Expansion (West Pier Side)	Nodal Center	0.0	Airport
5	GMR Township, Mamidipalli	North East	3.43	Airport
6	Rasheedguda	South West	3.4	Residential Area
7	Sardar Nagar	Southeast	8.2	Residential Area
8	Vellankanni Nagar	North West	4.7	Residential Area

2.3.2 Parameters Monitored: Parameters monitored during the study period are given in Table – 6.

TABLE -6

NOISE ANALYSIS DATA

Sl. No.	Locations	Date	Noise Levels in dB (A) L_{eq}			
			Day Time	Limits	Night Time	Limits
RGI Airport Core Zone						
1	GMR VF Building	11.03.2024	61.2	75	46.9	70
RGI Airport Site						
2	Site Office	12.03.2024	67.1	75	46.3	70
3	West Pier area	12.03.2024	63.9		58.4	
4	East Pier area	12.03.2024	71.6		51.9	
Buffer Zone (Residential Area)						
5	GMR Township, Mamidipalli	12.03.2024	50.6	55	42.6	45
6	Rasheedguda	12.03.2024	51.8		43.1	
7	Sardar Nagar	12.03.2024	50.2		43.8	
8	Vellankanni Nagar	12.03.2024	52.9		43.6	

Note: The standards in the residential Area are superseded by the Airport Noise zone standards as per MOEF&CC, GSR 568(E) under airport noise zone notified by DGCA vide letter Ref No. 04-01/2019-AED dated 05.07.2024.

The standards are Day time (from 6.00 am to 10.00 pm). **Leq:** 70 dB (A)

Night time from 10.00 pm to 6.00 am) **Leq:** 65 dB (A).

Ambient Noise levels standards

Category of Area	Limits in dB(A) Leq*	
	Day Time	Night Time
Industrial Area	75	70
Commercial Area	65	55
Residential Area	55	45
Silence Zone	50	40

TABLE – Ambient Noise Levels standards for Airports – GSR 568 (E)

- As per MoEF & CC GSR 568 (E) Noise standards for Airports are as follows

Category of Airports	Limits in dB(A) Leq	
	Day Time	Night Time
Ambient Noise levels in Airport Noise zone		
Busy Airports	70	65
All other Airports excluding proposed Airports	65	60
Within Airport boundary	75	70

- Rajiv Gandhi International Airport, Hyderabad comes under Busy Airports Category

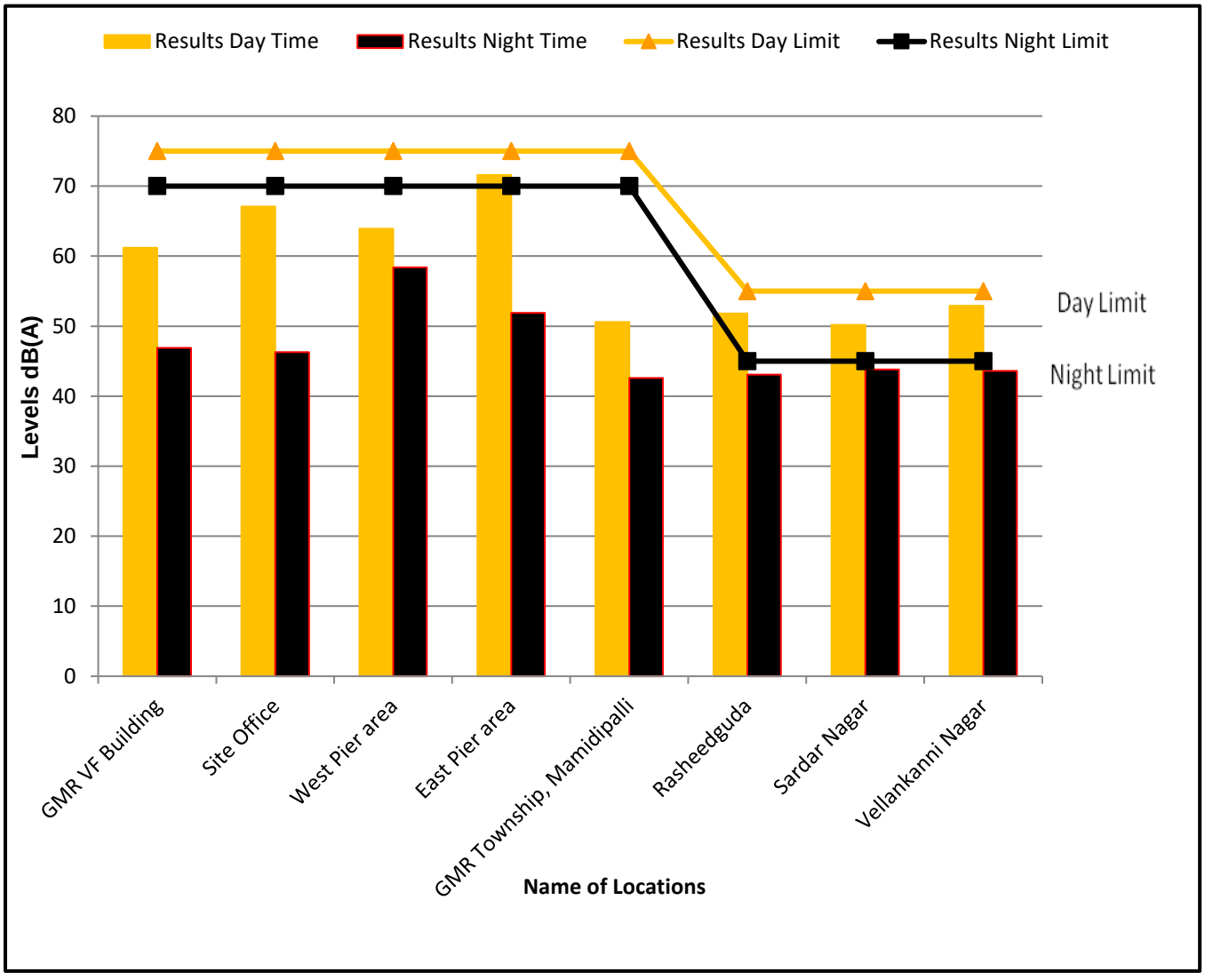
Note:

1. Day Time is recorded in between 6 am and 10 pm.
2. Night time is recorded in between 10 pm and 6 am.
3. Silence zone is defined as areas up to 100 meters around such premises as hospitals, educational institutions and courts. The silence zones are to be declared by the Competent Authority.
4. Use of vehicular horns, loudspeakers and bursting of crackers shall be banned in these zones.
5. Mixed categories of areas should be declared as one of the four above mentioned categories by the Competent Authority and the corresponding standards shall apply.

Source: EPA Notification [G.S.R. 106-01-123 (E), dt. 26.12.1989 published in the Gazette No. 643 dt. 26.12.1989]

- *dB (A) L_{eq} denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.
- A "decibel" is a unit in which noise is measured.
- "A" in dB (A) L_{eq}, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- L_{eq}: It is energy mean of the noise level over a specified period.

Fig – 4: MONTHLY NOISE LEVELVARIATION:



2.4 Ground water quality monitoring:

2.4.1 Details of monitoring locations: Four ground water samples were collected and analyzed for different parameters. Locations details are given in Table – 7.

TABLE- 7

DETAILS OF GROUND WATER SAMPLING LOCATIONS

Sl. No.	Name of the location	Direction/distance with respect to airport site		Sources	Description
		Direction	Distance (km)*		
1	Raseedguda	South West	3.4	Bore well water	Rural & Residential Area
2	Gollapali	South	3.1	Bore well water	Industrial Area
3	GMR Township, Mamidipalli	North East	3.43	Bore well water	Rural & Residential Area
4	Airport-1 (Irrigation Water)	West	0.0	Bore well water	Rural & Residential Area

2.4.2. Parameters monitored and results:

Monitored parameters and their results at different locations are given in Table- 8 & 9.

TABLE- 8

GROUND WATER QUALITY RESULTS

Date of Collection: 12 & 13-03-2024 **Date of Analysis: 13-03-2024**

S No	Test Parameters	Units	Results		LIMITS (IS:10500)2012	
			Raseedguda	Gollapalli	Desirable	Permissible
1	pH	-	6.91	7.13	6.5 to 8.5	No relaxation
2	E.C.	µs/cm	1432	1451	--	---
3	Total dissolved solids	mg/L	931	943	500	2000
4	Alkalinity as $CaCO_3$	mg/L	248	226	200	600
5	Total Hardness as $CaCO_3$	mg/L	312	261	200	600
6	Calcium as Ca	mg/L	95.4	78.5	75	200
7	Magnesium as Mg	mg/L	15.1	19.1	30	100
8	Sodium as Na	mg/L	56.2	69.3	---	--
9	Potassium as K	mg/L	1.9	1.8	---	---
10	Chlorides as Cl	mg/L	219	212	250	1000
11	Sulphates as SO_4	mg/L	68.2	59.5	200	400
12	Nitrates as NO_3	mg/L	6.7	9.1	45	No relaxation
13	Iron as Fe	mg/L	<0.01	<0.01	0.3	No relaxation
14	Phosphates as PO_4	mg/L	0.56	0.23	---	5.0
15	Fluorides as F	mg/L	0.62	0.42	1.0	1.5

TABLE – 9
GROUND WATER QUALITY RESULTS

Date of Collection: 12-03-2024 **Date of Analysis: 13-03-2024**

SNo	Test Parameters	Units	Results		LIMITS (IS:10500)2012	
			GMR Township, Mamidipalli	Airport-1 (Irrigation Water) - Sump 4	Desirable	Permissible
1	pH	-	7.32	7.09	6.5 to 8.5	No relaxation
2	E.C.	µs/cm	1251	1085	--	--
3	Total dissolved solids	mg/L	813	706	500	2000
4	Alkalinity as $CaCO_3$	mg/L	351	356	200	600
5	Total Hardness as $CaCO_3$	mg/L	405	451	200	600
6	Calcium as Ca	mg/L	118.8	148	75	200
7	Magnesium as Mg	mg/L	26.3	26.8	30	100
8	Sodium as Na	mg/L	76.1	68.7	--	--
9	Potassium as K	mg/L	2.6	3.6	--	--
10	Chlorides as Cl	mg/L	192	181	250	1000
11	Sulphates as SO_4	mg/L	87.5	61.2	200	400
12	Nitrates as NO_3	mg/L	12.4	9.3	45	No relaxation
13	Iron as Fe	mg/L	0.09	<0.01	0.3	No relaxation
14	Phosphates as PO_4	mg/L	0.22	0.19	--	5.0
15	Fluorides as F	mg/L	0.61	0.32	1.0	1.5

Fig – 5: VARIATION OF GROUND WATER:

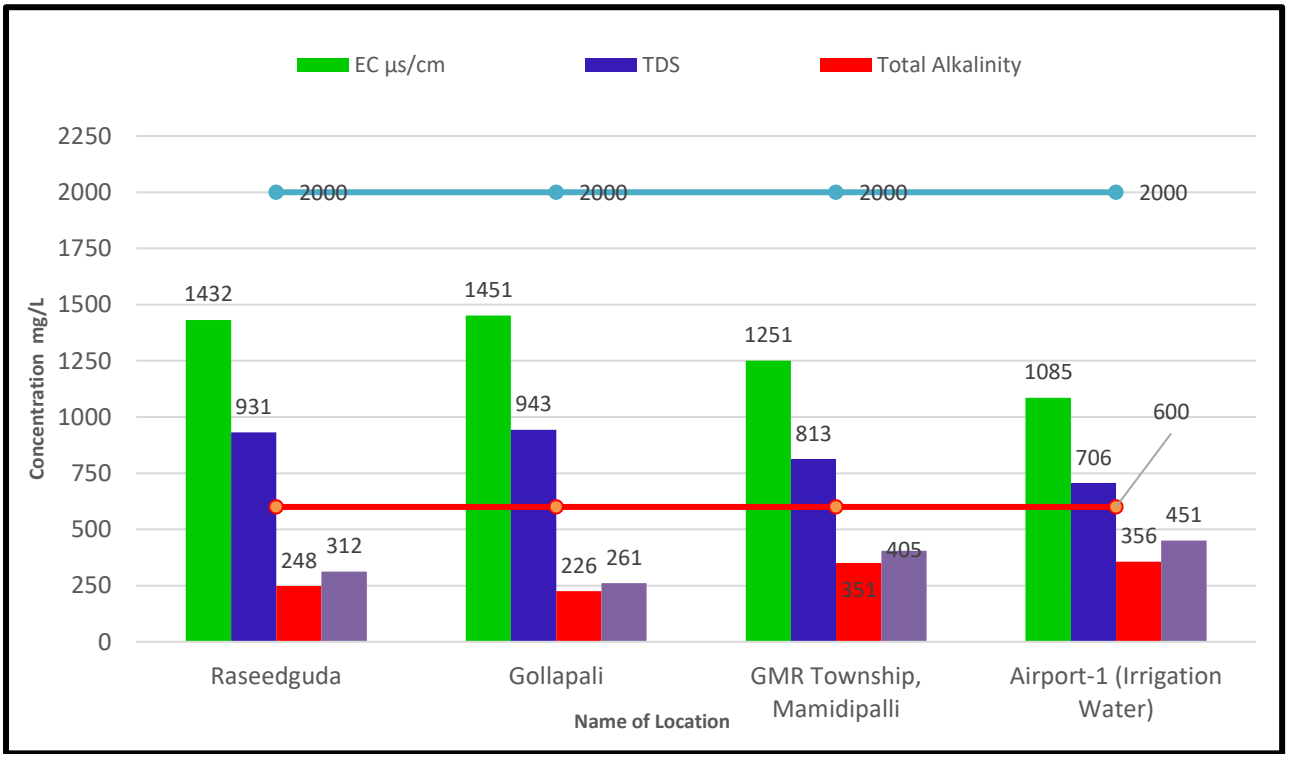
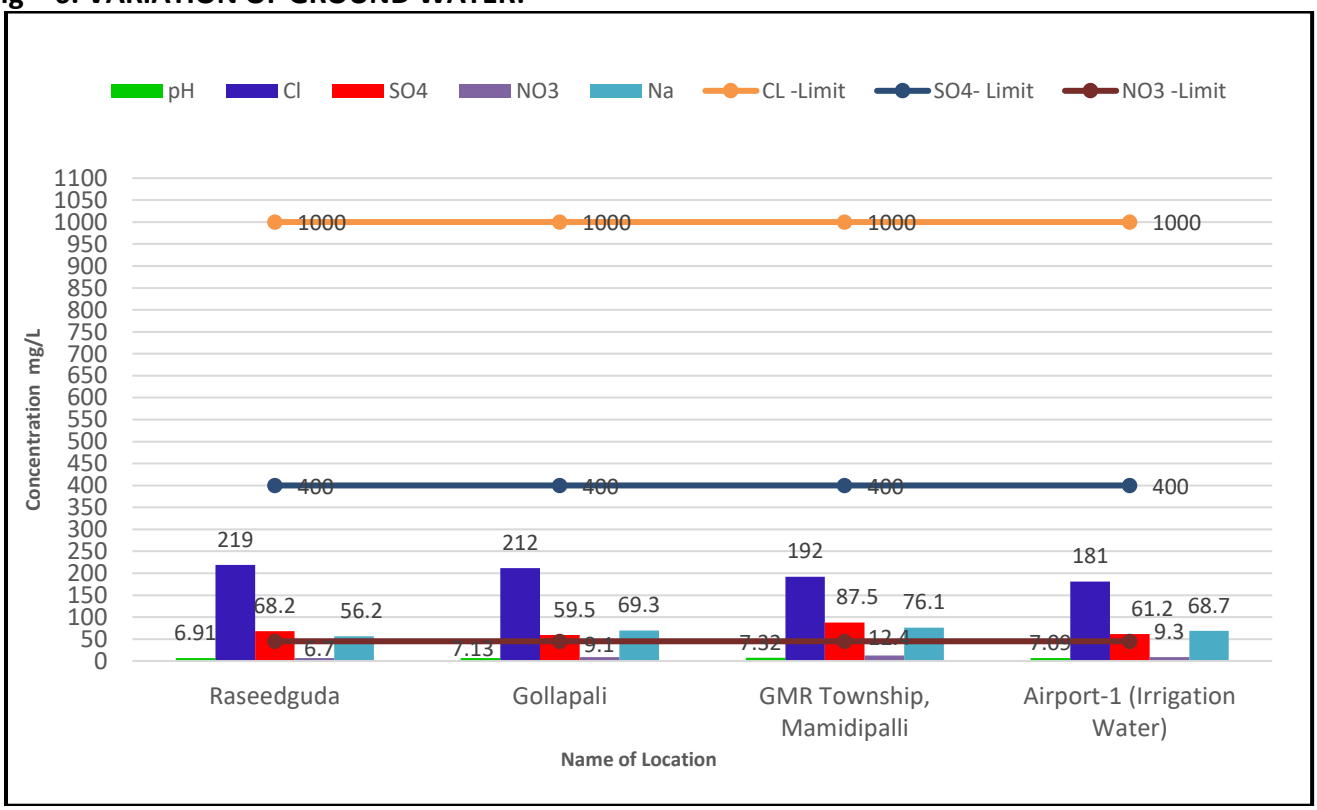


Fig – 6: VARIATION OF GROUND WATER:



2.5 Wastewater Analysis:

Wastewater samples were collected from one STP i.e. STP - IV for analysis from Equalization Tank, Filter Feed, ACF Outlet, and Softener outlet.

2.5.1 Details of Monitoring Locations:

Four wastewater samples have been collected; details of sampling location are given in Table-10.

TABLE-10
DETAILS OF WASTEWATER SAMPLING LOCATIONS

S. No	Location	Direction/Distance from airport		Description
		Direction	Distance	Wastewater samples collected on 11-03-2024
1	Equalization Tank – IV	Nodal Center	0.0	Airport-Airside
2	Filter Feed– IV	Nodal Center	0.0	Airport-Airside
3	ACF outlet– IV	Nodal Center	0.0	Airport-Airside
4	Softener outlet - IV	Nodal Center	0.0	Airport-Airside

2.5.2 Parameters Monitored:

All the parameters are well within the prescribed limits as presented in Table-11& 12

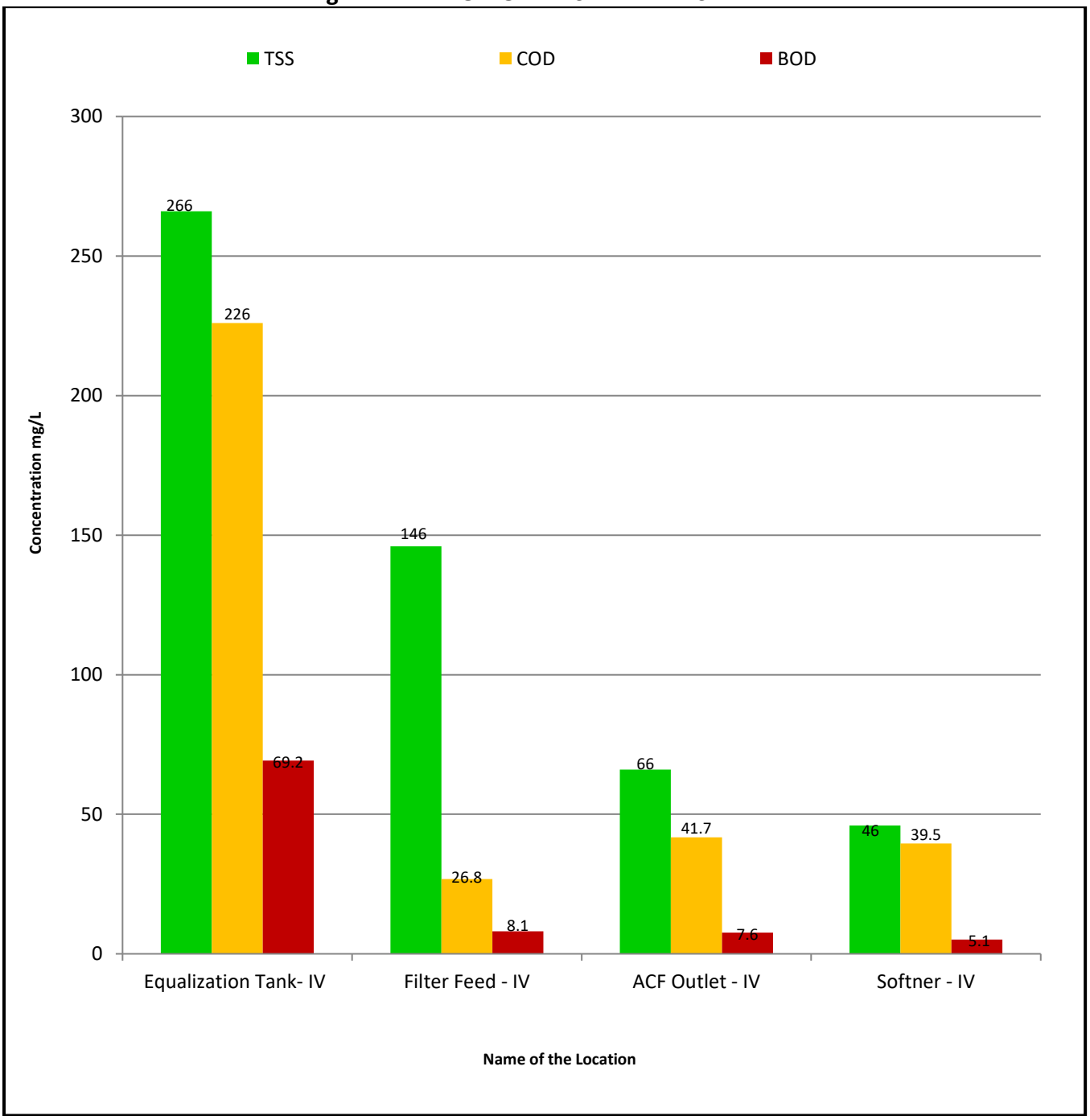
TABLE-11
MEASURED WASTEWATER PARAMETERS WITH RESULTS

Date of Collection: 11-03-2024 **Date of Analysis: 13-03-2024**

Name and Address of the Industry			M/s. GMR Hyderabad International Airport Ltd. Shamshabad-500 409, Hyderabad.				
			Results				Limits
Sl. No.	Test Parameters	Units	Equalization Tank-IV	Filter Feed - IV	Activated Carbon Filter Outlet– IV	Softener Outlet - IV	
1	True Colour	Hazel	4.5	1.3	<1.0	<1.0	--
2	Apparent Colour	-	Light Yellow	Colorless	Colorless	Colorless	--
3	Odour	-	Un-Objectionable	Un-Objectionable	Un-Objectionable	Un-Objectionable	--
4	pH	-	7.30	6.75	6.58	7.36	6.5 – 9.0
5	E.C.	µs/cm	2,027	1,870	1,868	1,881	--
6	Turbidity	NTU	5	0.1	0.05	0.05	--
7	Total suspended solids	mg/l	266	146	66	46	200
8	Total dissolved solids	mg/l	1,317	1,215	1,214	1,214	2100
9	Total Hardness as $CaCO_3$	mg/l	282	221	259	121	--
10	Sulphide as S	mg/l	1.0	0.7	0.6	0.5	2.0
11	Total Residual chlorine	mg/l	1.1	<0.1	<0.1	<0.1	--
12	Ammonical Nitrogen as N	mg/l	4.1	<0.01	<0.01	<0.01	50
13	COD	mg/l	226	26.8	41.7	39.5	250
14	BOD for 3 days 27 °C	mg/l	69.2	8.1	7.6	5.1	10
15	Oil & grease	mg/l	8.5	1.3	1.0	0.5	10
16	Nitrates as NO_3	mg/l	5.23	48.6	48.9	46.5	--
17	Nitrites as NO_2	mg/l	1.1	0.05	0.06	0.18	--
18	Phosphates as PO_4	mg/l	33.9	33.6	33.4	32.1	--
19	Dissolved Oxygen	mg/l	5.6	6.1	6.4	6.8	--
20	Arsenic as As	mg/l	<0.1	<0.1	<0.1	<0.1	--
21	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001
22	Lead as Pb	mg/l	0.07	0.012	0.04	0.03	--
23	Cadmium as Cd	mg/l	<0.01	<0.01	<0.01	<0.01	--
24	Hexavalent Chromium	mg/l	<0.01	<0.01	<0.01	<0.01	--
25	Total Chromium	mg/l	<0.01	<0.01	<0.01	0.08	--
26	Zinc as Zn	mg/l	0.38	0.18	0.13	0.11	--
27	Copper as Cu	mg/l	0.26	0.09	0.06	0.03	--
28	Residual Chlorine	mg/l	<0.1	<0.1	<0.1	<0.1	--
29	E-coli	MPN	Absent	Absent	Absent	Absent	Absent

****CPCB Limit as per GSR 422(E) & GHIAL Consent order dt.01.02.2022**

Fig-7: VARIATION OF WASTEWATER STP – IV



2.6 DG Stack Emission Data:

2.6.1 Presentation of results

DG - Stack details

Sample Collected on	12.03.2024
DG Set No	02
DG Set Capacity	2000 KVA
DG Location	D.G. Yard - RGIA
Stack diameter (m)	0.65
Stack Height (m)	30
Stack Cross section (m^2)	0.33

Flue Gas characteristics

Temperature (^0C)	132
Velocity (m/sec)	10.3
Flow rate (Nm^3/hr)	7,259

Emission Data

Parameters	Units	Limits*	Test Results
Particulate matter (PM)	**(mg/Nm^3)**	75	24.0
Oxides of Nitrogen (NOx)	**(ppmv)**	360	179
Carbon monoxide (CO)	**(mg/Nm^3)**	150	28.4
Non Methane Hydrocarbon (as C)	**(mg/Nm^3)**	100	49.1
Sulphur Dioxide (SO2)	**(mg/Nm^3)**	--	18.4

***Note: DG Set Emission Limits as per CPCB notification GSR 449 (E) dated 09.07.2002**

DG - Stack details

Sample Collected on	13.03.2024
DG Set No	--
DG Set Capacity	500 KVA
DG Location	GMR Aero Towers
Stack diameter (m)	0.15
Stack Height (m)	30
Stack Cross section (m^2)	0.017

Flue Gas characteristics

Temperature (^0C)	118
Velocity (m/sec)	16.2
Flow rate (Nm^3/hr)	829

Emission Data

Parameters	Units	Limits*	Test Results
Particulate Matter (PM)	**(g/KW-hr)**	0.2	0.091
Carbon monoxide (CO)	**(g/KW-hr)**	3.5	0.051
Hydro Carbon (HC)	**(g/KW-hr)**	4.0	0.068
Oxides of Nitrogen (NO_x)	**(g/KW-hr)**		1.92

***Note: DG Set Emission Limits as per CPCB notification GSR 771 (E) dated 11.12.2013**

2.7 Conclusion:

Ambient Air Quality:
Ambient Air Quality parameters such as PM_{10}, $PM_{2.5}$, SO_2, NO_x, CO, Ammonia, Ozone, Methane and Benzene are well within the limits prescribed by TSPCB.

Ambient Noise Level:
Noise levels recorded in day and night are within the standard limits.

Wastewater Quality:
Wastewater samples are collected from each stage of treatment process in STP, Outlet water quality are within the General standard of effluent Discharge limits prescribed by Central Pollution Control Board and as per CFO issued by Telangana State Pollution Control Board.

Ground Water Quality:
Ground water samples are drawn from various locations in and surrounding villages which are found within the permissible limits.

Stack Emission:
Stack emission parameters are tested and found within the standard limits as prescribed by the TSPCB.

GMR Hyderabad International Airport Limited

Hazardous Waste Generation and Disposal during Apr'23 - Mar'24

Manifest number	Date	Name of the waste	Name of Generator	Quantity (Litres)	Authorised agency
GHIAL/HWM/2023/01	05-04-2023	Waste engine oil	Inter Globe Aviation Ltd (Indigo)	2520	SVR Trading
GHIAL/HWM/2023/02	19-05-2023	Waste engine oil	Inter Globe Aviation Ltd (Indigo)	1470	SVR Trading
GHIAL/HWM/2023/03	24-05-2023	Used oil	GMR Air Cargo & Aerospace Engineering Ltd.	1050	Mistry petroleum Products
GHIAL/HWM/2023/04	06-07-2023	Used oil	Inter Globe Aviation Ltd (Indigo)	2310	SVR Trading
GHIAL/HWM/2023/05	16-08-2023	Used oil	Air India Sats Airport Services Pvt Ltd	1680	Mistry petroleum Products
GHIAL/HWM/2023/06	14-12-2023	Used oil	Celebi Airport Services India pvt Ltd	1050	SVR Trading
GHIAL/HWM/2023/07	27-12-2023	Used oil	Reliance BP Mobility Ltd.	630	SVR Trading
GHIAL/HWM/2024/01	18-01-2024	Used oil	GMR Hyderabad International Airport Limited	3400	Indian Tar Coal Company
GHIAL/HWM/2024/02	08-03-2024	Waste engine oil	Inter Globe Aviation Ltd (Indigo)	4620	SVR Trading
Total hazardous waste generation during Apr'23 - Mar'24				**18730**	

Annexure –IV

Solid Waste Disposal for April 2023-March 2024

Month & Year	Quantity in kg
Apr-23	345224
May-23	293547
Jun-23	302111
Jul-23	393590
Aug-23	393897
Sep-23	387726
Oct-23	367253
Nov-23	371739
Dec-23	451378
Jan-24	468494
Feb-24	445771
Mar-24	417291
Total waste generation	**4638021**
STP Sludge	**720000**
Total waste generation from process + STP	**5358021**

Note: Total solid waste generated 4638021 kg/year [Food waste-4002000 kg, STP sludge- 720000 kg, paper-281992 kg, plastic-168517 kg, Metal waste-48179 kg and glass-137333 kg]